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Hexahedron

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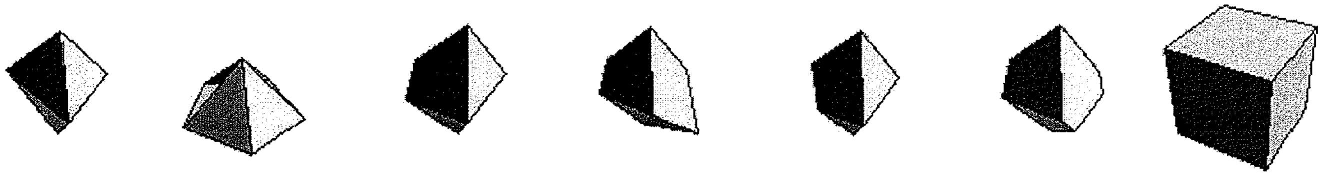
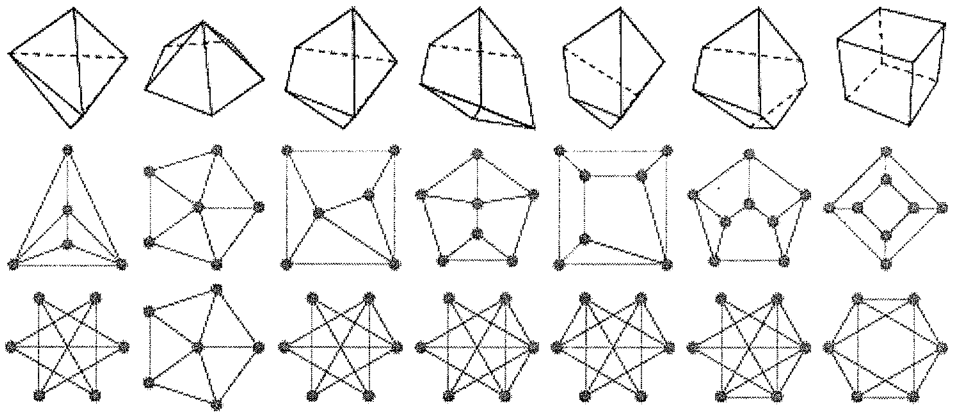


A hexahedron is a polyhedron with six faces. There are seven convex hexahedra, corresponding through graph duality with the seven hexahedral graphs. The illustration above shows the seven hexahedra (top line), their skeletons (middle line), and the hexahedral graphs whose duals correspond to the polyhedra and their skeletons (bottom line). The unique regular hexahedron is the cube, and there are two hexahedra that can be built from regular polygons with equal edge lengths: the regular triangular dipyramid the pentagonal pyramid.



Through graph duality, the list of numbers of vertices for each polyhedron in a hexahedron corresponds to the degree sequence (sequence of vertex degrees) of a hexahedral graph. The following table lists the hexahedra, together with their degree sequences, number of vertices V, and number of edges E, which are related through the polyhedral formula.

hexahedron	degree sequence	V	E
triangular dipyramid	(3, 3, 3, 3, 3, 3)	5	9
pentagonal pyramid	(3, 3, 3, 3, 3, 5)	6	10
(3,3,3,3,4,4)	(3, 3, 3, 3, 4, 4)	6	10
(3,3,3,4,4,5)	(3, 3, 3, 4, 4, 5)	7	11
(3,3,4,4,4,4)	(3, 3, 4, 4, 4, 4)	7	11
(3,3,4,4,5,5)	(3, 3, 4, 4, 5, 5)	8	12
cube	(4, 4, 4, 4, 4, 4)	8	12

SEE ALSO: Cube, Hexagonal Pyramid, Hexahedral Graph, Polyhedron, Triangular Dipyramid. [Pages Linking Here]

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